



DoE Building Technologies Office Physical Characterization of Equipment Industry Challenges

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Honeywell

CONNECTED BUILDINGS

Growing Value

- Efficient and reliable operations
- Risk management and productivity
- Serving the customer's business with relevant insights

Technology Drivers

- Improved sensing / IOT
- Open application ecosystems
- Smart phones
- BIM
- M2M transactions

The connected building isn't new, its just getting even better.

CONNECTED WORKERS



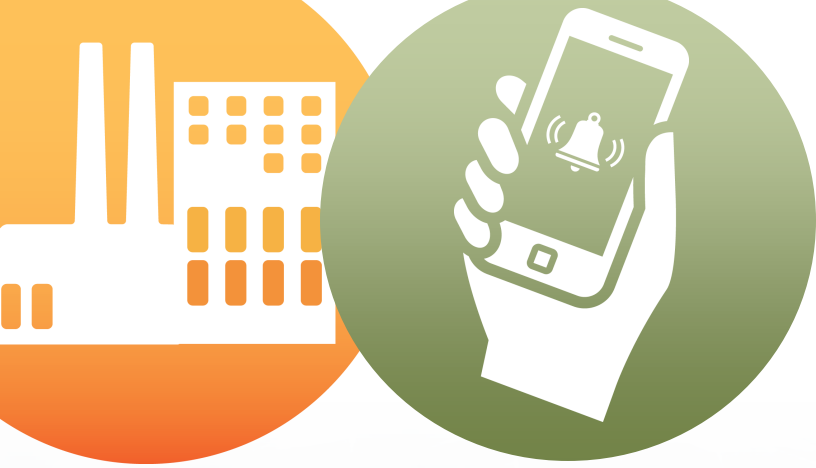
Business Value

- Real time, accurate and secure data
- Enhanced safety
- Increased productivity
- Improved Results

Technology Drivers

- BYOD
- Location-aware services
- “There’s an app for that...”

Connected people will drive the future of the connected building.



CONNECTED BUILDINGS

Challenges for Autonomous Connected Equipment



Common Language – what are we saying?



Data integrity – how can we be certain?

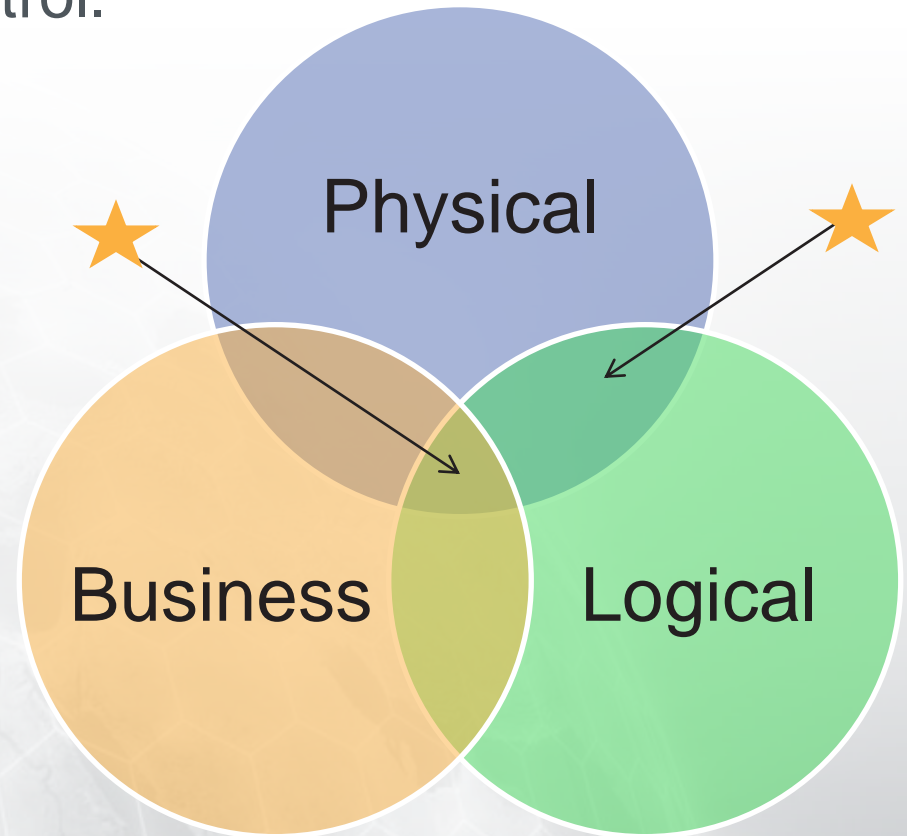


Secure information exchange – who do we trust?

What are we saying?

There are multiple groups working on standards for various levels of abstraction in the description of data related to buildings, equipment and control.

- ASHRAE
- BACnet / LONMark / Modbus
- Haystack
- gbXML
- BEDES
- BIM / IFC / ISO
- COBie
- USGBC LEED



Where concerns overlap is where we need to focus attention.

How do we ensure integrity?

- We need more than a vocabulary
 - Units of Measure
 - Frequency of Samples
 - Synchronization
 - Accuracy and Calibration
- Meeting M2M service expectations
 - Self-describing
 - Responsive
 - Transparent
 - Arbitration for conflicting directives or objectives
- Establishing standard metrics
 - Flexlab

Through engagement in CABA, Honeywell is an active participant in the Flexlab™ Working Group.
<http://flexlab.lbl.gov/>

How will we verify trusted connections?

- How will authentication be managed?
 - *How can we be certain we're really talking to the peer that we expect?*
- Traditional firewalls aren't going suffice.
 - *How do we get more fine-grained compartmentalization in the control room where systems come together?*
- Communication will get interrupted. Authentication is going to fail. Fail gracefully.
 - *How do we keep highly connected systems robust?*

- Integrators have been engineering connected systems for many years.
- Customers want reliable and connected solutions, *at the right cost*. Uptake is a matter of availability and ease of deployment.
- *The future is a more autonomous connected facility, that exposes a connected experience to the end users and stakeholders, and protects their long-term investments in connected infrastructure.*